

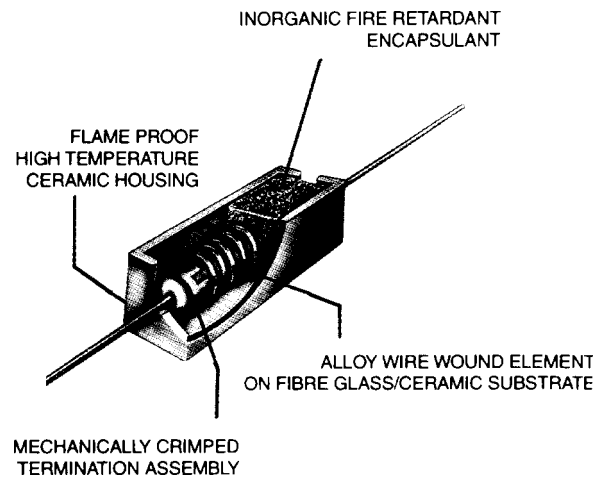


POWER TYPE

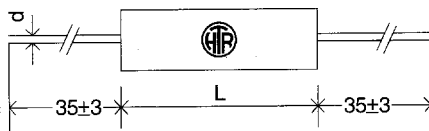
CERAMIC ENCASED WIRE WOUND RESISTORS FIRE PROOF

HCA / HCV SERIES

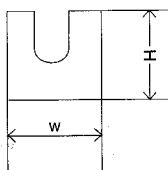
- Very high degree of insulation
- Low surface temperature
- TCR as low as ± 100 ppm/ $^{\circ}\text{C}$ available
- 1W to 20W



PHYSICAL CONFIGURATION



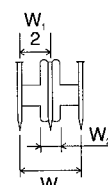
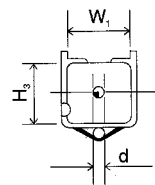
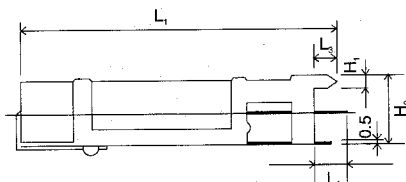
HCA SERIES



HTR TYPE	POWER RATING at 70°C	DIMENSIONS(mm)				RESISTANCE RANGE		WT. PER PC (gms)
		L ± 1.5	W ± 1	H ± 1	d ± 0.05	MIN	MAX	
C-1A	1W	13.0	5.5	5.5	0.8	R10	370R	1.4
C-1	1W	15.0	6.5	7.5	0.8	R10	400R	1.9
C-2	2W	17.5	7.5	7.0	0.8	R10	1K0	2.5
C-3	3W	22.0	8.0	8.0	0.8	R15	1K8	3.8
C-5	5W	22.0	9.5	9.5	0.8	R20	2K1	5.1
C-7	7W	35.0	9.5	9.5	0.8	R82	5K2	7.8
C-10	10W	48.0	9.5	9.5	0.8	R82	11K	10.8
C-15	15W (25°C)	48.0	12.5	12.5	1.0	1R2	11K	17.8
C-20	20W (25°C)	65.0	12.5	12.5	1.0	1R2	13K	22.0

- Resistance values below the above range are also available in a range of temperature coefficients from 450 ppm/ $^{\circ}\text{C}$ to 1300 ppm/ $^{\circ}\text{C}$.
- Resistance values above the range are available using ceramic substrates.
- In order to facilitate vertical mounting of the large 7W to 20W resistors in HCA series on heavily populated PCB's they can be supplied on request with mounting brackets as shown in HCV series.

PHYSICAL CONFIGURATIONS



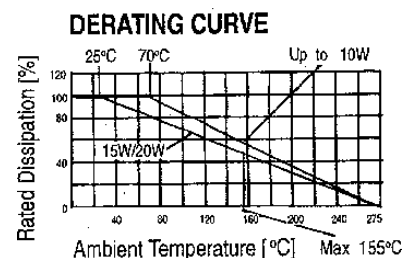
HCV SERIES

HTR TYPE	POWER RATING at 70°C	DIMENSIONS(mm)										RESISTANCE RANGE [Ohms]		WT PER PC (gms)
		L ₁	L ₃	L ₄	H ₁	H ₂	H ₃	W ₁	W ₂	W ₃	d ± 0.1	Min.	Max.	
CV-7	7	60 ± 1.5	5 ± 0.5	7 ± 1	2.1 ± 0.15	11 ± 1	9.5 ± 1	10 ± 1	2.1 ± 0.15	10 ± 1	0.8	R50	5K2	10.0
CV-10	10	67 ± 1.5	5 ± 0.5	7 ± 1	2.1 ± 0.15	11 ± 1	9.5 ± 1	10 ± 1	2.1 ± 0.15	10 ± 1	0.8	R82	11K	13.3
CV-15	15	62.5 ± 2	4.5 ± 0.2	6.5 ± 1	2.5 ± 0.15	14 ± 1	12.5 ± 1.2	13 ± 1.2	2.5 ± 0.15	13 ± 1	1.0	1R2	11K	22.1
CV-20	20	78 ± 2	4.5 ± 0.2	6.5 ± 1	2.5 ± 0.15	14 ± 1	12.5 ± 1.2	13 ± 1.2	2.5 ± 0.15	13 ± 1	1.0	1R2	13K	26.4



ELECTRICAL AND ENVIRONMENTAL CHARACTERISTICS / DATA

Test	Performance Requirements
Resistance Tolerance	$\pm 10\%$ [K]; $\pm 5\%$ [J]; [$< 1\Omega \pm 0.05\Omega$]
Rated ambient temperature [see derating curve]	Up to 10W, full power dissipation at 70°C 15W/20W full power dissipation at 25°C
Di-electric withstanding voltage	Max. $\Delta R \pm [2\% + 0.05\Omega]$
Insulation resistance	$> 1000 M$ [minimum]
Temperature co-efficient	± 200 ppm/°C [$> 10\Omega$] ± 450 ppm/°C [$< 10\Omega$] ± 600 ppm/°C [$< 10\Omega$]
Short time overload	Max. $\Delta R \pm [2\% + 0.05\Omega]$
Moisture resistance	Max. $\Delta R \pm [5\% + 0.05\Omega]$
Load life	Max. $\Delta R \pm [5\% + 0.05\Omega]$
Ambient operating temperature range	-25°C to + 155°C
Flame test	Specifications laid down by UL have been met satisfactorily

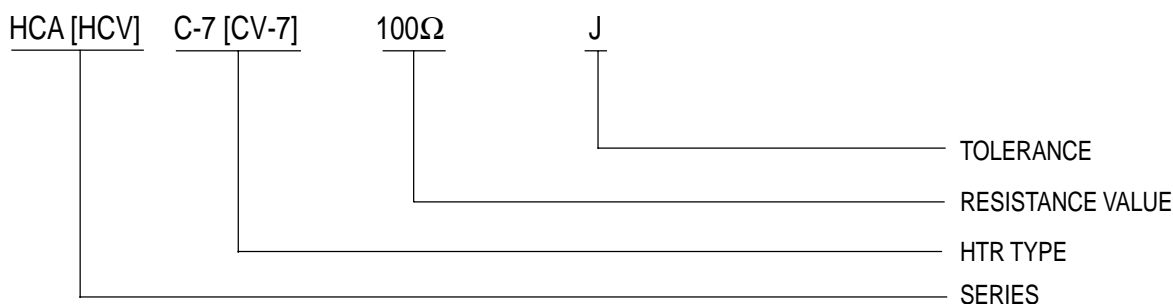


TYPICAL APPLICATION

HCA/HCV Series resistors are almost universally used in the far east for almost all audio, TV and Industrial Equipment. This series enjoys the following distinct advantages over normal coated resistors:

- 1) As the resistive element is hermetically sealed in a ceramic case using a cement which enjoys flame retardant properties even at high overload no damage can be caused to neighbouring components.
- 2) They are resistant-against aggressive solvents.
- 3) Due to very high degree of insulation and low surface temperature, these resistors can be mounted with their bodies relatively closer to the P.C. Boards.
- 4) These resistors are also commonly referred to in the far east as cement resistors owing to the nature of their Construction.
- 5) In certain markets these resistors are also wrongly called fusible resistors.

ORDERING INFORMATION



NOTE:

TAPING : Types C-1A, C-1, C-2, C-3 and C-5 can be supplied in taped form. Please refer to page 49 for taping specifications.

NOTE : Due to recent technological advances, the ceramic cases used may be steatite ceramic / cordierite ceramic / high alumina ceramic depending on the nature of application. Hence the ceramic cases may be off-white / variations of brown and variations of grey; colours which are inherent to these ceramic materials.



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Specifications subject to change without notice.